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<b>(21) International Application Number:</b> PCT/US99/31126 <b>(22) International Filing Date:</b> 28 December 1999 (28.12.99)  <b>(30) Priority Data:</b> 09/224,936 31 December 1998 (31.12.98) US  <b>(71)(72) Applicants and Inventors:</b> CHIA, Meang, K. [US/US]; 412 West 6th Street, Suite 1104, Los Angeles, CA 90014 (US). CHIA, Cheo, K. [US/US]; 412 West 6th Street, Suite 1104, Los Angeles, CA 90014 (US). CHIA, Huy, K. [US/US]; 412 West 6th Street, Suite 1104, Los Angeles, CA 90014 (US).  <b>(74) Agents:</b> GALLENSON, Mavis, S. et al.; Ladas & Parry, 5670 Wilshire Blvd., Suite 2100, Los Angeles, CA 90036-5679 (US).		<b>(81) Designated States:</b> AU, CA, JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> DECORATIVE JEWELRY ARTICLE  <div data-bbox="506 1092 1091 1562" data-label="Image"> </div> <b>(57) Abstract</b> <p>A decorative jewelry module comprises a base member with a hollow interior, a decorative insert, and a fastener arrangement. The hollow base member has a top with an opening therein, a bottom, and an interior. The decorative insert is sized in relation to the interior of the base member so as to be placed within the hollow base member and viewed through the top opening. The fastener arrangement fixes the decorative insert within the hollow base member below the base member top. The decorative jewelry article may be manufactured as a multi-part base and decorative insert combination, or as a monolithic jewel article having a base portion and a decorative element portion. The jewelry article may be designed to have the appearance of a single decorative unit, or to have the appearance of a double (or greater) decorative unit. Such units have application in many jewelry items. A number of such units may be connected in series to form a tennis bracelet.</p>		

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DECORATIVE JEWELRY ARTICLEBACKGROUND OF THE INVENTIONField of the Invention

This invention relates to articles of jewelry, and in particular to a monolithic or modular simulated gem and gem setting arrangement.

Brief Description of the Prior Art

Unitary jewelry articles and/or modular links for forming jewelry bracelets, necklaces, pendants, and rings are well known. The so-called tennis bracelet, for example, is a bracelet having a series of connected modular units, each unit comprising an actual diamond or other gem and a setting therefor.

Reference is made to the following U.S. patents:

<u>Patent No.</u>	<u>Inventor(s)</u>
Des. 110,568	L. Garfinkel
1,189,497	A. Schwartzman
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20 2,538,090	H. Ferragamo
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Des. 48,950	C. Rosenberger
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Des. 42,643	H.H. Meyers
Des. 176,664	Adolph Katz
Des. 143,588	O. Green
Des. 265,639	Josef J. Barr

	Des. 84,213	A.E.R. Speidel
	Des. 56,605	H. Grasmuk
	Des. 151,904	A. Katz
	Des. 145,426	J. Braunstein
5	Des. 144,901	J. Braunstein
	Des. 160,241	P. Bardach

Reference is also made to prior U.S. patent applications of the inventor of the present invention as follows: Patent Application No. 07/572,678, filed August 23, 1990 for

10 "BRACELET DESIGN", which is a continuation application of Design Application Serial No. 397,094 filed August 22, 1989 entitled "BRACELET OR THE LIKE".

Non-patent references of interest may include:

1. "Charms" catalog, Page 136, Item #136-20, by Americas  
15 GOLD, 650 South Hill St., Los Angeles, CA 90014'
2. "Liberty Collections" catalog, Pages 4 and 21, by Liberty I. Exchange, 333 Washington St. #203-1, Boston, MA 02108;
3. "Diamond Flower" jewelry by S&R Designs, Inc., Marlton, NJ;
- 20 4. Items #P10529, #84619, #84622, National Jeweler, May 16, 1997;
5. Janet Alix necklace, Jewelers' Circular Keystone, May, 1997;
6. Catalog Item #4D, Skalet Gold, 3600 N. Talman Ave.,  
25 Chicago, IL 60618
7. Caroline Ballou Collection, June Las Vegas Show, K25-K27, and Barnett Robinson, Inc. June Las Vegas Show, Galleria #10;
8. Item N362, P.Q.C. Jewelry, National Jeweler, June 1, 1998,  
30 Page 142;
9. "Love Tears" collection, by Studs, Inc., 42 W. 48 St., New York, NY 10036;
10. Slide pendant, by Superior Diamond Cutters Inc., 589 Fifth Ave., New York, NY 10017;
- 35 11. Uni-Creation, Inc., Emby International, Inc. collection, 589 Fifth Avenue, New York, NY 10017;
12. A Promotional Supplement To JCK, May 1997, Pages 178, 179;

13. Item SS424, Corona Jewellery Company, 16 Ripley Ave., Toronto, Ontario, M6S 3N9, Canada;
14. "Bezel-set jewelry, California Gold Center, 606 S. Hill St., Los Angeles, CA 90014;
- 5 15. "Partners" fashion jewelry, Cache fashion watches, Mervyn's California catalog flyer, 1998, Page 11;
16. California Precision Products Co. Catalog "Laser Spot-Welding Systems", One Industrial Court, Riverside, Rhode Island 02915;
- 10 17. Maty, Collection Automne - Hiver 97-98, Valeur 30F, No. 76.

The jewelry articles shown and described in the prior art noted above take on various aesthetically pleasing forms for displaying gems, real or simulated, in a variety of visual and  
15 structural configurations.

Channel settings and bezel settings that use real gems increase the price of a jewelry item dramatically.

In all such articles of the prior art in which a gem or simulated gem is mounted in a gem setting, the gem or  
20 simulated gem is positioned above the setting. In assembling the gem and gem setting combination, typically a series of upwardly directed prongs project from the setting, also referred to as a "base", and the gemstone, or simulated gemstone, is placed within the setting from above, after which  
25 the series of prongs are bent downwardly to embrace the gem or simulated gem. While this configuration displays the gem in the foreground relative to the setting, there are many disadvantages to such construction.

In particular, with the prongs of the setting exposed, it is  
30 relatively easy to snag clothing or inflict minor injuries to the skin of a person by an inadvertent scraping action. Moreover, the prongs of the setting base are unsightly, detracting from the aesthetic qualities of the article of jewelry.

If one were to conceive of the idea of avoiding the unsightliness of extending mounting prongs, the idea would be quickly rejected, due to the fact that if a precious stone, for example a diamond or ruby, or the like, is mounted below the upper surface of the setting base, the pointed bottom of the stone would penetrate the skin of the user even more so than is commonly done even with stones mounted from the top of a setting base or bezel. The pointed bottom of a precious stone is, by design, formed with specific depth and angles to capture as much light as possible for reflection through the stone, thereby enhancing the brilliance and spectacle of the gem.

Yet another disadvantage of the use of prior art unitary modules for connection in series to form a tennis bracelet, for example, is that such bracelet construction is rather labor intensive, each modular unit having to be connected to an adjacent unit, and for a bracelet with, typically thirty or more, individual modules, the cost of the bracelet to the ultimate consumer may be inflated beyond expectation of the purchaser who values the article of jewelry on the basis of its precious stone content. Typical prong, channel, and bezel settings not only use expensive gems that sometimes get damaged during the setting procedure, but these types of settings themselves are costly. The purchaser would be greatly benefitted by a less costly manufacturing process, since, for the same purchase price, the purchaser would receive more or larger stones, or stones of a greater quality. There is therefore a need in the art for reducing the manufacturing costs of multi-modular jewelry items.

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#### SUMMARY OF THE INVENTION

The present invention satisfies the needs and desires of the purchasing public while simultaneously solving the aforementioned problems associated with jewelry items in which the gem is mounted above the setting.

35 In accordance with one aspect of the invention, there is provided a decorative jewelry article comprising a hollow base

member, a decorative insert, and a fastener arrangement. The hollow base member has a top, a bottom, an interior, and an opening in the top. The decorative insert is sized in relation to the interior of the base member so as to be placed  
5 within the hollow base member and viewed through the top opening. The fastener arrangement fixes the decorative insert within the hollow base member below the base member top.

Employing the principles and concepts of the present invention, it will be appreciated that, since the decorative  
10 insert or simulated decorative insert is positioned within a base member below the top and above the bottom of the base member, snagging of clothing, and penetration of the user's skin is avoided. Unlike real gems, the simulated gem of the present invention does not extend below the bottom of the base  
15 member in which it is contained.

In another aspect of the invention, there is provided a plurality of such hollow base members, or modular links, for example a pair of such base members may be linked together in the manufacturing process so that the number of individual  
20 modular units to be assembled to form a tennis bracelet, for example, is halved.

The present invention also provides for a number of selectable structural configurations and mounting processes, depending on need, desired security for a mounted gem or simulated gem, and  
25 aesthetic considerations.

#### BRIEF DESCRIPTION OF THE DRAWING

These and other aspects of the invention will be better understood, and additional features of the invention will be described hereinafter having reference to the accompanying  
30 drawings in which:

FIGURE 1 is a perspective view showing a tennis bracelet employing the concepts of the present invention, as worn on a person's wrist, the bracelet including a series of hinged interlinked individual modules or links;

FIGURE 2 is a top plan view of the bracelet of Figure 1, in an unlatched and laid out condition;

FIGURE 3 is a side view of the bracelet of Figure 2;

FIGURE 4 is a bottom view of the bracelet of Figure 2;

- 5 FIGURE 5 is a perspective view of a jewelry article arrangement comprising a hollow base member and a decorative insert, made in accordance with the present invention;

FIGURE 6 is a perspective view of a single unitary jewelry article mounted in a ring setting;

- 10 FIGURE 7 is a perspective view of an alternative design for the base member from that shown in Figure 5;

FIGURE 8 is a perspective view of an integral base and decorative element comprising a decorative jewelry article according to the present invention;

- 15 FIGURE 9 is a plan view of the jewelry article shown in Figure 5;

FIGURE 10 is a right side view of the jewelry article shown in Figure 9;

- 20 FIGURE 11 is a bottom plan view of the jewelry article shown in Figure 9;

FIGURE 12 is a cross sectional view of the jewelry article shown in Figure 5, the figure showing both the base member and decorative insert in cross section;

- 25 FIGURE 13 is a cross sectional view of a base member and decorative insert in a completely assembled condition;



FIGURE 14 is a cross sectional view of an alternate fastener arrangement for retaining the insert within the hollow base member;

FIGURE 15 is a top plan view of a segment an alternate design  
5 for a tennis bracelet in which pairs of decorative jewelry articles are manufactured as unitary dual-segment jewel items hingedly interlinked to form a tennis bracelet;

FIGURE 16 is a partial cross sectional view of the tennis bracelet segment shown in Figure 15;

10 FIGURE 17 is a bottom plan view of one of the dual-segment jewelry items shown in Figure 15, each segment displaying a separate individual decorative insert;

FIGURE 18 is a bottom plan view of an alternative form of a dual-segment hollow base member in which may be inserted the  
15 decorative insert of Figure 20;

FIGURE 19 is a side elevation view of the dual-segment jewelry item shown in Figure 23 with additional, optional, mounting prongs for retaining the decorative insert in place;

FIGURE 20 is a top plan view of a dual-segment decorative  
20 insert of the type to be inserted in the dual-segment hollow base member shown in Figure 18;

FIGURE 21 is a side cross sectional view of the dual-segment insert shown in Figure 20;

FIGURE 22 shows an alternate construction for joining the two  
25 halves of a dual-segment decorative insert, distinguished from that shown in Figure 21;

FIGURES 23A-F show, schematically, six different preferred prong configurations for fixing a dual-segment decorative insert into a dual-segment hollow base member;

FIGURE 24 shows a cross sectional view of a unitary, integral, simulated gem and setting, and also shows a technique for depositing a coating on the decorative pattern below the top surface;

- 5 FIGURE 25 is a magnified view of the portion of Figure 24 marked with the circle 25;

FIGURE 26 shows yet a further configuration of a segment of a tennis bracelet employing the dual-segment base member/decorative insert technology in accordance with the  
10 present invention;

FIGURE 27 is a top plan view of an alternative configuration for a dual-segment decorative insert, distinguished from that of Figure 20;

FIGURE 28 is a top plan view of a dual-segment jewelry item  
15 employing the dual-segment decorative insert shown in Figure 27.

FIGURE 29 is a partial perspective drawing showing connected ones of the decorative jewelry article in a bracelet form;

FIGURE 30 shows an alternate surface texture treatment of the  
20 base member from that shown in Figures 5-10;

FIGURE 31 is a top plan view of a decorative jewelry article having a base similar to that of Figure 30, but with a smooth outer side surface and a wider annular top surface;

FIGURE 32 is a schematic representation of a four segment  
25 decorative jewelry article;

FIGURE 33 is a schematic representation of a six segment decorative jewelry article connectable in series longitudinally of the connected articles;

FIGURE 34 is a schematic representation of a six segment decorative jewelry article connectable in series laterally of the connected articles;

FIGURE 35 is a schematic representation of a three segment decorative jewelry article connectable in series longitudinally of the connected articles; and

FIGURE 36 is a side elevational view of a variation of the stepped embodiment shown in Figure 7, the former having additional steps and a variety of surface finishes or textures.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Those skilled in the art will appreciate that jewelry items may take on a myriad of different shapes and sizes, and certain jewelry designs will be appropriate for any number of different jewelry items, such as bracelets, necklaces, rings, broaches, pendants, studs, and the like. Accordingly, it will be understood that, although the present invention will be described in terms of primarily a jewelry article having a cylindrical shape in horizontal cross section or a generally figure-8 geometrical configuration, the concepts of the invention are equally applicable to other geometric designs and shapes, for example articles having a heart-shape, a triangular shape, a square or rectangular shape, an oval shape, or a multi-sided polygon shape, a pear shape, a marquise shape, or an elliptical shape, to name a few.

It will also be understood that the present invention is not particularly involved with the specific type of connecting means or latch means for a multi-modular bracelet. For those functions, a person of ordinary skill in the art will be presumed to follow traditional structures and processes. Thus, the application of the present invention to the jewelry industry is not limited to bracelets, rings, or other jewelry items shown and described herein. It will also be understood that the concepts of the present invention may be implemented in a piece of jewelry independent of whether or not the

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jewelry article is comprised of a singular integral material or of a multi-part construction such as a base support member with a decorative insert confined therein.

In a tennis bracelet 1, such as that shown in Figures 1-4,  
5 each module 3 of the tennis bracelet is made with a number of hingedly interlinked individual unitary modules 3 linked with like modules to form the bracelet. An appropriate latch means 5, 7 connected to opposite ends of the bracelet 1, may be of ordinary design and function, such as a conventional tongue  
10 and groove fastener.

A first embodiment of the invention is shown in Figures 5, 6, and 9-13. In this embodiment, each jewelry article or item, hereinafter also referred to as a module or modular link 3 is provided with a base support member 13 embracing within its  
15 interior a decorative insert 17 which is preferable plate-shaped. Base support member 13 has a top portion shown in Figures 5, 6, and 9-13 as being planar. The top surface 15 has an opening 16 through which may be viewed the decorative insert 17 which lies below the top surface 15 (in all  
20 embodiments of the invention).

The lower portion of the base member 13 may be provided with optional cut-outs or "windows" 19 to reduce weight, and, in a bracelet application, base member 13 has a linking means 11 with a bendable end portion 12 for connection to a like  
25 jewelry module 3.

The module 3 of Figure 6 does not possess a linking means, as it will be mounted on the base of, or be an integral part of, a ring, earring, charm, pendant, broach, cufflink, or the like.

30 In the Figure 5 embodiment, it will be observed that the base member 13 is of a hollow cylindrical configuration having a continuous sidewall and planar top 15, except for the cut-outs, or "windows" 19.

Figure 7 differs from Figure 5, in that the upper peripheral edge of the base member 13A has a stepped configuration defined by a vertical wall portion 16 and a horizontal step portion 23, the horizontal step portion 23 having an irregular exposed surface. Although the horizontal step portion 23 may take on a variety of visual characteristics, the preferred embodiment of Figure 7 shows the horizontal step portion 23 as a series of generally V-shaped or sawtooth serrations or indentations as viewed in side elevation.

It will also be observed by reference to Figure 7 that the top surface 15A of module 3A is conical. It is contemplated that, if decided, the conical surface 15A may be convex or concave at the discretion of the jewelry designer. However, even in a concave configuration, the lowest part of the top surface 15A will always be above the uppermost surface of the decorative insert 17 in order to be consistent with one of the major features of the present invention.

The embodiment of Figure 8 differs from that of Figures 5 and 7, in that it is manufactured in monolithic, or integral fashion, i.e. the module 3B of Figure 8 comprises a base member 13B and integral decorative element 17B. For example, the module 3B may be cast in solid gold with the surface of the decorative portion 17B highly polished for simulating a gem or other type of attractive insert, when in fact the decorative portion 17B is not a separate physical element. Due to the lack of any need for a fastener arrangement in module 3B, the windows 19B may be made quite large (significantly larger than that schematically shown in Figure 8) relative to the size of the base member 13B to present a rather delicate appearing bracelet link.

Figures 9-11 show a top, side, and bottom view of the module 3 of Figure 5. With particular reference to Figure 11, and the cross sectional views of Figures 12 and 13, the interior of the hollow base member 13 is thickened at its upper portion defining an integral interior annular band 27, best seen in Figure 12. Projecting downwardly from annular band 27 at a

selected number of positions distributed angularly thereon are a number of projecting tabs or prongs 29. In Figure 11, four such tabs or prongs 29 are shown. However, any number of tabs may be provided, as desired.

- 5 These tabs or prongs 29 are formed during manufacture as a number of downwardly projecting elements as best seen in Figure 12. After a plate-like decorative insert 17 is inserted from the bottom of the hollow base member 13 past the tips of the projecting tabs or prongs 29, the projecting tabs  
10 or prongs 29 are bent upwardly (Figure 13) against the rear surface 25 of the decorative insert 17 to retain the insert 17 in place within the hollow base member 13.

- In the preferred embodiments of the invention, the decorative inserts, such as insert 17, are plate-like elements having  
15 been scored radially from the center to present numerous facets 39, or are formed with a pattern of v-shaped grooves radiating from the center of the plates. Variations of such patterning will be seen in the dual-segmented decorative inserts 63 and 107 of Figures 20 and 27, respectively.

- 20 To insure stability and facilitate the mounting of decorative insert 17 within hollow base member 13, the circular band 27 in the upper portion of base member 13 leads to an integral inwardly directed annular rim 41 surrounding the top opening 16. Annular rim 41 is shown in Figure 12 to be inwardly  
25 directed from the top of the annular band 27, and thus defines a horizontally oriented annular surface 33 facing downwardly.

- In this connection, the upper peripheral edge 33 of decorative insert 17 is designed to have predetermined, reasonably precise, outer peripheral dimensions, in the circular  
30 embodiment shown in the drawing, for example, a specific outer diameter. Peripheral edge 35 fits precisely with the inwardly facing annular surface 34 and smoothly against the downwardly facing annular surface 33. This insures proper positioning and a proper centering of insert 17, and prevents insert 17  
35 from moving laterally within base member 13.

In a variation of this embodiment of the invention, the outer peripheral surface of insert 17 and the inwardly facing inner surface 34 of the base member 13 may define complementary sloping walls (if circular-conical walls) to further ensure a solid mounting and centering of insert 17 within base member 13.

In Figures 12 and 13, it is illustrated that the insert 17 is moved into contact with downwardly facing annular surface 33, and then the fastener arrangement, i.e. projecting tabs or prongs 29 are bent against rear surface 25 to capture the insert 17 between the annular rim 41 and the bent tabs or prongs 29. In Figure 14, a more simplified assembly of the insert 17 into a hollow base member 13C is suggested, whereby the base member 13C is manufactured with one or more inwardly directed short ledges 43. To assemble the module 3C, one end of insert 17 is placed on the ledge or ledges 43 and swung up past one or more projecting tabs or prongs 29, after which the one or more tabs or prongs 29 will be bent against the rear surface 25 of insert 17 in a manner similar to that shown in Figure 13.

Figures 15-17 depict an embodiment of the invention in which the decorative jewelry article is formed of an assembled series of modules; however, in this embodiment of the invention, the individual modules are dual-segmented. That is, they are comprised of a pair of base members 55, 57 and a corresponding pair of decorative inserts 63. The module 53 of Figure 17, for example, has the appearance of a pair of modules 3 permanently attached at 59. The dual-segmented configuration results in an equally attractive jewelry article, but has advantages in lowering labor costs in the manufacturing process.

It should be noted that, in manufacturing the module 53, the two separate base portions 55, 57 may be connected by means of welding, or the double base portion configuration shown in Figure 17 may be cast as a single dual-base piece. In either case, the assembly of a bracelet 51 is made simpler by the

fact that half as many modules 53 need connecting together to form a tennis bracelet than if the module 53 was divided into separate individual modules such as that shown in Figure 5.

It will be understood that more than two segments 3, 3A, 3B, 5 3C, for example, may be fixedly attached to form a multi-segment jewelry module. Only single-segment and dual-segment modules are described herein in detail for ease of presentation. Also, multiple-segment modules may be designed with all segments in a planar alignment, or with the segments 10 connected so as to form a slightly arcuate module for more closely conforming to the curvature of a persons wrist.

As with the Figure 11 embodiment, each base portion, i.e. a first base portion 55 and a second base portion 57, is provided with originally downwardly directed tabs or prongs 15 69, and after a pair of decorative inserts 63 are installed, the tabs or prongs 69 are bent to apply pressure against the rear surfaces 64 of inserts 63.

Figure 15 shows a segment of a completed tennis bracelet 51 having the first and second base portion 55, 57, respectively, 20 welded as shown at 59, and each base portion 55, 57 securely houses a separate decorative insert 63 employing the function and procedure described in connection with Figures 12 and 13. Connecting the dual-segment base module 53 with the linking means 61 is evident by reference Figure 16.

25 Figures 18-23 illustrate a dual-segment module 73 differing in construction from that of Figures 15-17. In Figures 18-23, the hollow base member 74 has a figure-8 shape with a first base portion 76 and a second base portion 78. About the inner periphery of each base portion 76, 78, there is provided an 30 annular rim 75, 77, respectively. Annular rims 75, 77 serve the same purpose as the annular rim 41 described in connection with Figure 12. That is, annular rims 75, 77 provide a stop for an insert 63 (Figure 20) moving in the bottom-to-top direction.



As observed in Figures 20 and 21, the dual-segment insert 63 is likewise figure-8 shaped, with a pair of nearly circular faceted decorative surfaces 63A and 63B.

Figure 19 is a side view of the two-portion module 73 showing the position of the linking means 81 and a number of open windows 87. It will be recalled that, in the single and double base configurations of Figures 12 and 17, a thickened upper portion, denoted as annular band 27 is formed with the downwardly depending projecting tabs or prongs 29, 69. In the embodiment of Figures 18-23, there is no need for an annular band, since the downwardly projecting tabs or prongs 85 are formed depending from the upper frame of one or more of the windows 87. When the prongs 85 are bent inwardly against the rear surface 68 (see Figure 21) of the decorative insert 63, the tabs or prongs 85 are virtually not visible and thus do not detract from the beauty of the jewelry article.

In addition to a number of tabs or prongs 85 around the periphery of each base portion 76, 78, the module 73 may be cast with a projecting central prong 79 which may extend downwardly from the center of the module 73, and/or one or two prongs may be formed at one or two locations 79A and 79B, depending on the number of prongs required, necessary, or desired for retaining the insert 63 in position.

In this respect, Figures 23A-23F show the tab or prong positions for a number of possible configurations for the tabs or prongs employed to retain the insert 63 in place. That is, Figure 23A-23F show, in order, the configuration for retaining insert 63 by means of a single prong, two prongs, three prongs, four prongs, five prongs, and eight prongs. These configurations, and others which are possible with the construction and description of the embodiment of Figures 18-23, are possible and at the discretion of the jewelry article designer.

Figure 21 is a cross sectional view of the insert 63 shown in Figure 20, Figure 21 showing the two faceted regions 63A and

63B which are viewable through openings 80 and 82 in the first and second base portions 76, 78, respectively. Central hole 63F is positioned and sized to receive prong 79 of the dual-segment base member 74 (Figure 18).

- 5 The dashed lines in Figure 21 show an offset in insert 63, defining a depression 63D for bridging across connection 74A (Figure 18) when such connection 74A is at a position in base member 74 lower than the annular rims 75, 77.

- 10 Figure 22 illustrates the possibility of connecting individual circular inserts 63C and 63D by a bridge strap 66, a plan view of such configuration being substantially the same as that shown in Figure 20. The advantage of the Figure 22 arrangement is that the same inserts can be used in the dual-segment base configuration as used in the single-segment base  
15 configuration.

- Not shown in the drawings is another possible embodiment for the dual-segment, figure-8, base configuration. Such an alternative configuration would have both base portions 76 and 78 constructed similar to the single base portion embodiment  
20 of Figure 8. That is, the entire module 73 may be formed by an integral, monolithic, casting, in which case there would be no need for any tabs or prongs 79, 79A, 79B, or 85.

- Figure 24 is relevant in this respect, as it shows, in cross section, the integral, monolithic, module 3B in which the  
25 faceted design 95, formed by the casting process, is enhanced in reflectivity and luster by coating the surface 95 with rhodium or other material 93 from a nozzle 91. The process forms a layer 97 which additionally protects the decorative portion against corrosion.

- 30 Figure 26 illustrates an alternative shape for the individual base portions of a bracelet segment 99. Here, the dual-segment modules 105 are comprised of a pair of heart-shaped base members 101, 103. Figure 26 is thus suggestive that the choice for a geometrical configuration of the base portion, or

base portions, is virtually unlimited. For example, it is within the scope of the present invention to construct a decorative jewelry article having a round or square base with a heart-shaped cutout in the upper surface thereof, and with a  
5 round or square decorative insert mounted underneath, and exposed through, the heart-shaped cutout.

Figures 27 and 28 show the construction of another variation of the dual-segmented decorative insert similar to that of Figure 18, except that the front of the dual-segmented base  
10 109 has an open and continuous channel 111 leading to both end openings 113 and 115, while the view from above for the configuration of Figures 18-23 which reveal two separate, and isolated, faceted surfaces 63A and 63B. In Figure 28, a connecting part of the faceted insert 107 is visible in the  
15 open channel 111 creating an unusual visual effect for the module.

Figure 29 is a partial perspective drawing showing connected ones of the decorative jewelry article 117 forming a bracelet 116. The individual articles 117 may be welded or soldered  
20 together in any desired pattern, Figure 29 being an example only. In Figure 29, each connected module has a knurled annular top surface and a smooth cylindrical side surface.

Figure 30 shows a decorative jewelry article 120 having alternate surface texture treatments of the base member  
25 exposed surfaces 121, 123 from that shown in Figures 5-10.

Figure 31 is a top plan view of a decorative jewelry article having a base member similar to that of Figure 30, but with a smooth outer side surface 118 and a wider knurled annular top surface 119.

30 Figure 32 is a schematic representation of a four segment decorative jewelry article 124 having modules 123 of any style hereinbefore described, and with linking means 125 extending from two parallel modules along one side of the article 124.

Figure 33 is a schematic representation of a six segment decorative jewelry article 127, having modules 129 and linking means 131, a number of such articles 127 being connectable in series longitudinally of the connected articles.

5 Figure 34 is a schematic representation also of a six segment decorative jewelry article 133, but with three linking means 137 extending from three aligned modules 135, a number of such articles 133 being connectable in series laterally of the connected articles.

10 Figure 35 is a schematic representation of a decorative jewelry article 139 having three segments 141 and a single linking means 143, a number of such articles 139 being connectable in series longitudinally of the connected articles.

15 It is to be understood that the number of connected modules to form a multiple-segment decorative jewelry article, and the geometrical arrangement of such connected modules, is virtually limitless. The specific arrangements shown and described herein are exemplary only.

20 Figure 36 is a side elevational view of a module 151 which is a variation of the stepped embodiment of the module shown in Figure 7, the former shown to have additional horizontal annular surfaces (steps) 153, 155, 157, 159 and to have vertical cylindrical surfaces 161, 163, 165, 167 of different surface  
25 finishes or textures.

While only certain embodiments of the invention have been set forth above, alternative embodiments and various modifications will be apparent from the above description and the accompanying drawing to those skilled in the art. For

30 example, in the preferred embodiment of a circular base member 13, the faceted insert 17 and the inner annular surfaces 33, 34 may be square shaped, diamond shaped, heart shaped, and the like, while the outer appearance of the base member 13 may

remain circular. Similarly, base member 13 may be square shaped, diamond shaped, heart shaped, and the like, while the faceted insert 17 may be circular. Any combination of these and other geometric shapes are intended to be within the scope  
5 of the invention.

Likewise, it is contemplated that features such as serrated surfaces, smooth surfaces, faceted surfaces, planar surfaces, conical surfaces, straight peripheral sides, stepped  
10 peripheral sides, as well as shapes of base members and inserts as described herein, may be combined in a virtually limitless number of arrangements and presentations.

Additionally, although single and dual-segmented decorative jewelry articles are shown and described in detail herein, any desired number of segments may be selected, the construction  
15 of which would be well within the skill of a person working in the jewelry art following the teaching in this description.

As described, the decorative insert(s) and exposed surfaces of the stepped portion of the base units have preferred surface textures as shown and described. However, at the discretion  
20 of the designer, any or selected ones of such surfaces may be faceted, knurled, smooth, shiny, colored, frosted, or formed with diffraction gratings or filigree patterns, or may have thereon random markings, organized markings, and/or may be textured to simulate real gems.

25 If desired, rather than manufacturing the decorative jewelry article as a modular multi-piece decorative article, the invention may be implemented as a unitary arrangement of component parts with an internal simulated decorative insert.

In the preferred embodiments shown and described herein, the  
30 fastening means for fixing the decorative insert in the base unit uses bendable fingers pressing against the back side of the insert after it is in place within the interior of the base member. Alternatively, the insert(s) may be fixed in place by other methods, such as soldering, swaging, scoring,

and welding including laser welding. Swaging, scoring, and laser welding are techniques that work well with the decorative insert arrangement of the present invention, but are not suitable for fixing real gems in place due in large part to the configuration, shape, and weight of real gems. As to laser welding, reference is made to the apparatus and methods of laser welding techniques disclosed in California Precision Products Co. Catalog "Laser Spot-Welding Systems", One Industrial Court, Riverside, Rhode Island 02915, such document incorporated herein by reference.

These and other alternatives and variations are considered equivalents and within the spirit and scope of the present invention.

WHAT IS CLAIMED IS

1. A decorative jewelry article, comprising:  
a base member having a hollow interior, a top with an opening therein leading to said hollow interior, and a bottom;  
a decorative insert configured and sized in relation to said base member to be placed within said hollow interior and viewed through said top opening, said decorative insert being fixed within said base member below said base member top.
2. The decorative jewelry article as claimed in Claim 1, comprising a fastener arrangement fixing said decorative insert within said base member below said top.
3. The decorative jewelry article as claimed in Claim 1, wherein said decorative insert is fixed within said base member by a process selected from the group consisting of welding including laser welding, soldering, swaging, and scoring.
4. The decorative jewelry article as claimed in Claim 1, wherein:  
said base member has an integral interior annular rim surrounding said top opening, said annular rim defining a stop against which said decorative insert abuts upon movement of said decorative insert within said base member in a bottom-to-top direction.
5. The decorative jewelry article as claimed in Claim 4, wherein:  
said decorative insert is captured between said interior annular rim and a fastener arrangement fixing said decorative insert within said base member below said top.
6. The decorative jewelry article as claimed in Claim 5, wherein:  
said decorative insert is plate-shaped and has an upper surface and a rear surface, at least said upper one of said surfaces being a decorative surface;

said fastener arrangement comprises at least one bendable tab integrally formed on the interior said base member and projecting downwardly; and

said at least one tab is bendable inwardly of said base member interior, against the rear surface of an inserted decorative insert, whereby said decorative insert is captured between said interior annular rim and said at least one tab.

7. The decorative jewelry article as claimed in Claim 1, wherein:

said base member comprises a linking arrangement for linking said decorative jewelry article to a like decorative jewelry article.

8. The decorative jewelry article as claimed in Claim 1, wherein:

said base member has a stepped top outside peripheral surface comprising a vertical wall portion and a horizontal step portion.

9. The decorative jewelry article as claimed in Claim 8, wherein:

said horizontal step portion has an irregular exposed surface.

10. The decorative jewelry article as claimed in Claim 1, wherein:

said base member top is annular and planar.

11. The decorative jewelry article as claimed in Claim 1, wherein:

said base member top is annular and conical.

12. The decorative jewelry article as claimed in Claim 6, wherein:

said base member has at least one side opening, each said side opening extending from an exterior base member surface to an interior base member surface: and



said at least one tab is formed as a projection from a peripheral edge of said side opening.

13. The decorative article as claimed in Claim 1, wherein:  
said decorative insert is plate-like with a multi-faceted top surface exposed through said top opening.

14. The decorative jewelry article as claimed in Claim 8, wherein:  
said horizontal step portion is formed with a series of indentations; and  
said indentations are generally V-shaped as viewed in side elevation.

15. The decorative jewelry article as claimed in Claim 13, wherein facets of said multi-faceted top surface are formed by generally V-shaped grooves of changing depths.

16. The decorative jewelry article as claimed in Claim 13, wherein:  
said multi-faceted surface is circular in plan view.

17. The decorative jewelry article as claimed in Claim 4, wherein:  
said decorative insert is plate-shaped and has an upper surface and a rear surface, at least said upper one of said surfaces being a decorative surface;  
said base member hollow interior has an interior peripheral wall surface;  
said fastener arrangement comprises at least one bendable tab integrally formed with said base member and projecting downwardly from said interior surface; and  
said at least one tab is bendable inwardly of said base member interior, against said decorative insert rear surface, whereby said decorative insert is captured between said interior annular rim and said at least one tab.

18. The decorative jewelry article as claimed in Claim 1, wherein:

said base member is segmented, defining a plurality of substantially identical base member segments fixedly connected together side-by-side, each said segment embracing a decorative insert below said base member top, each said decorative insert being fixed within its respective base member segment.

19. The decorative jewelry article as claimed in Claim 1, wherein:

said base member is segmented, defining a plurality of substantially identical segments fixedly connected together side-by-side;

said decorative insert is segmented, defining a like plurality of substantially identical insert segments fixedly connected together side-by-side, said segmented decorative insert being fixed within said segmented base member below said base member top.

20. The decorative jewelry article as claimed in Claim 18, wherein:

said base member comprises a linking arrangement for linking said decorative jewelry article to a like decorative jewelry article.

21. The decorative jewelry article as claimed in Claim 20, wherein:

when said plurality of fixedly connected segments are arranged in a generally rectangular shape having two long sides and two short sides, said linking arrangement interlinks said plurality of fixedly connected segments along their shorter sides.

22. The decorative jewelry article as claimed in Claim 20, wherein:

when said plurality of fixedly connected segments are arranged in a generally rectangular shape having two long sides and two short sides, said linking arrangement interlinks

said plurality of fixedly connected segments along their longer sides.

23. The decorative jewelry article as claimed in Claim 18, wherein:

each said base member segment has an integral interior annular rim surrounding said top opening, said annular rim defining a stop against which a corresponding decorative insert abuts upon movement of said corresponding decorative insert within said base member segment in a bottom-to-top direction.

24. The decorative jewelry article as claimed in Claim 22, wherein:

each said decorative insert is captured between an interior annular rim and a fastener arrangement, fixing each said decorative insert within each said base member segment below said top.

25. The decorative jewelry article as claimed in Claim 22, wherein:

each said decorative insert is plate-shaped and has an upper surface and a rear surface, at least said upper one of said surfaces being a decorative surface;

said fastener arrangement comprises at least one bendable tab integrally formed on the interior of each said base member segment and projecting downwardly; and

said at least one tab is bendable inwardly of each said base member segment interior, against the rear surface of an inserted decorative insert, whereby each said inserted decorative insert is captured between said interior annular rim and said at least one tab.

26. The decorative jewelry article as claimed in Claim 19, wherein:

said base member has an integral interior annular rim surrounding said top opening, said annular rim defining a stop against which said decorative insert abuts upon movement of

said decorative insert within said base member in a bottom-to-top direction.

27. The decorative jewelry article as claimed in Claim 26, wherein:

said decorative insert is captured between said interior annular rim and a fastener arrangement fixing said decorative insert within said base member below said top.

28. The decorative jewelry article as claimed in Claim 26, wherein:

said decorative insert is plate-shaped and has an upper surface and a rear surface, at least said upper one of said surfaces being a decorative surface;

said fastener arrangement comprises at least one bendable tab integrally formed on the interior said base member and projecting downwardly; and

said at least one tab is bendable inwardly of said base member interior, against the rear surface of an inserted decorative insert, whereby said decorative insert is captured between said interior annular rim and said at least one tab.

29. The decorative jewelry article as claimed in Claim 25, wherein:

each said base member segment has at least one side opening, each said side opening extending from an exterior base member surface to an interior base member surface: and

said at least one tab is formed as a projection from a peripheral edge of said side opening.

30. The decorative jewelry article as claimed in Claim 28, wherein:

said base member has at least one side opening, each said side opening extending from an exterior base member surface to an interior base member surface: and

said at least one tab is formed as a projection from a peripheral edge of said side opening.

31. A decorative integral jewelry article, comprising:

a lower base portion;  
an upper base portion having a top rim, said top rim having an opening therein; and  
an interior decorative insert positioned within said base portion and viewable through said opening in said top rim, all of said decorative portion being positioned below said top rim.

32. The decorative integral jewelry article as claimed in Claim 31, formed integrally with a like decorative integral jewelry article in a manner to align said upper top rims generally in a common plane.

33. The decorative integral jewelry article as claimed in Claim 31, wherein one of said lower and upper base portions comprises a connector element for connecting said decorative integral jewelry article to a like decorative integral jewelry article.

34. The decorative integral jewelry article as claimed in Claim 32, wherein one of said lower and upper base portions comprises a connector element for connecting said decorative integral jewelry article to a like decorative integral jewelry article.

35. The decorative integral jewelry article as claimed in Claim 31, wherein:

said upper base member has a stepped top outer peripheral surface comprising a vertical wall portion and a horizontal step portion;

said horizontal step portion has an irregular exposed surface; and

said top rim is defined by the uppermost surface of the upper base portion from which said vertical wall portion depends.

36. A decorative jewelry article, comprising:

a base member having an hollow interior, a top with an opening therein leading to said hollow interior, and a bottom;

a decorative insert configured and sized in relation to said base member to be placed within said hollow interior and viewed through said top opening, said decorative insert being fixed within said base member such that no portion of said decorative insert extends above said base member top, and no portion of said decorative insert extends below said base member bottom.

37. A method for constructing a decorative jewelry article, comprising:

providing a base member having a hollow interior, a top with an opening therein leading to said hollow interior, and a bottom;

providing a decorative insert configured and sized in relation to said base member to fit within said hollow interior and viewed through said top opening;

placing said decorative insert in said base member hollow interior below said base member top; and

fixing said decorative insert to said base member.

38. The method for constructing a decorative jewelry article as claimed in Claim 37, wherein, in said placing step, said decorative insert is positioned within said base member above said base member bottom.

39. The method for constructing a decorative jewelry article as claimed in Claim 37, wherein said decorative insert is fixed within said base member interior by a process selected from the group consisting of welding including laser welding, soldering, swaging, and scoring.

40. The method for constructing a decorative jewelry article as claimed in Claim 37, wherein said base member has an integral interior annular rim surrounding said top opening, said annular rim defining a stop, and said placing step comprising moving said decorative insert in a bottom-to-top direction until said decorative insert abuts against said stop.

41. The method for constructing a decorative jewelry article as claimed in Claim 37, wherein said decorative insert is captured between said interior annular rim and a fastener arrangement fixing said decorative insert within said base member below said top.

42. The method for constructing a decorative jewelry article as claimed in Claim 37, wherein said decorative insert is plate-shaped and has an upper surface and a rear surface, and said fastener arrangement comprises at least one bendable tab integrally formed on the interior said base member and projecting downwardly, and said method comprises the step of bending said at least one tab inwardly of said base member interior, against the rear surface of an inserted decorative insert, whereby said decorative insert is captured between said interior annular rim and said at least one tab.

43. A decorative jewelry article, comprising:

- a base member having a hollow interior, a top with an opening therein leading to said hollow interior, and a bottom;

- a decorative insert having top and bottom surfaces and configured and sized in relation to said base member to be placed within said hollow interior;

- an integral interior annular rim within said base member segment surrounding said top opening, said annular rim defining a stop against which a corresponding decorative insert abuts upon movement of said corresponding decorative insert within said base member segment in a bottom-to-top direction; and

- a fastener arrangement for applying pressure against the bottom surface of said decorative insert, thereby capturing said decorative insert between said interior annular rim and said fastener arrangement.

44. The decorative jewelry article as claimed in Claim 43, wherein:

- said decorative insert is plate-shaped and has an upper surface and a rear surface;

said fastener arrangement comprises at least one bendable tab integrally formed on the interior of each said base member segment and projecting downwardly; and

said at least one tab is bendable inwardly of said base member interior, against the rear surface of an inserted decorative insert, whereby each said inserted decorative insert is captured between said interior annular rim and said at least one tab.

45. The decorative jewelry article as claimed in Claim 43, wherein:

said base member is segmented, defining a plurality of substantially identical base member segments fixedly connected together side-by-side, each said segment embracing a decorative insert below said base member top, each said decorative insert being fixed within its respective base member segment.

46. The decorative jewelry article as claimed in Claim 43, wherein:

said base member is segmented, defining a plurality of substantially identical segments fixedly connected together side-by-side;

said decorative insert is segmented, defining a like plurality of substantially identical insert segments fixedly connected together side-by-side, said segmented decorative insert being fixed within said segmented base member.

47. A decorative jewelry article, comprising:

a base member having an interior, a top with an opening therein leading to said interior, and a bottom;

a decorative insert configured and sized in relation to said base member to be placed within said interior; and

a fastener arrangement fixing said decorative insert within said base member; and wherein:

said base member has an integral interior annular rim surrounding said top opening, said annular rim defining a stop against which said decorative insert abuts upon movement of



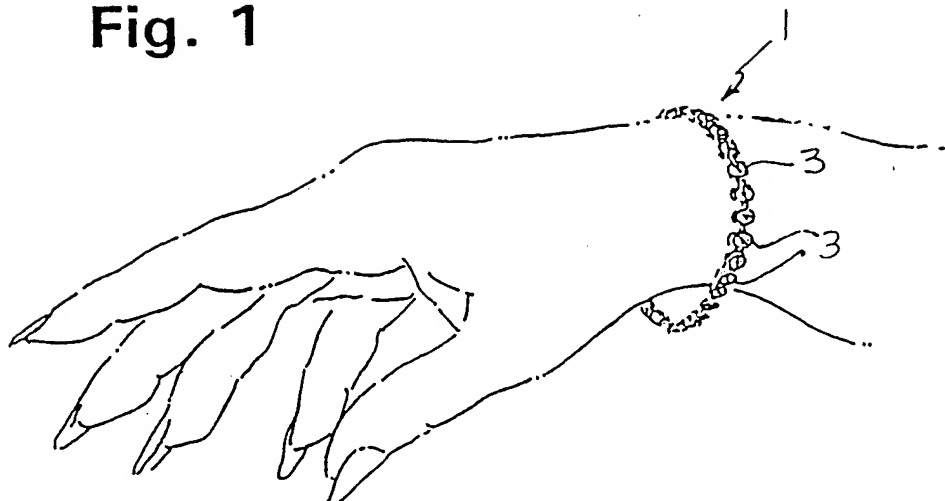
said decorative insert within said base member in a bottom-to-top direction;

said decorative insert is plate-shaped and has an upper surface and a rear surface;

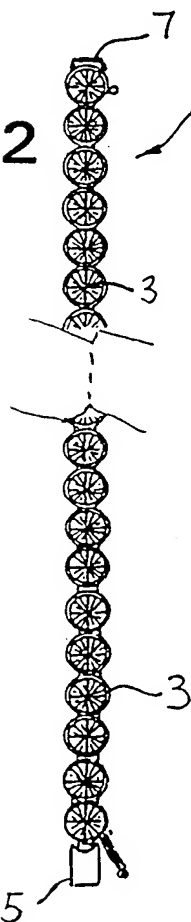
said fastener arrangement comprises at least one bendable tab integrally formed on the interior of said base member and projecting downwardly; and

said at least one tab is bendable inwardly of said base member interior, against the rear surface of an inserted decorative insert, whereby said decorative insert is captured between said interior annular rim and said at least one tab.

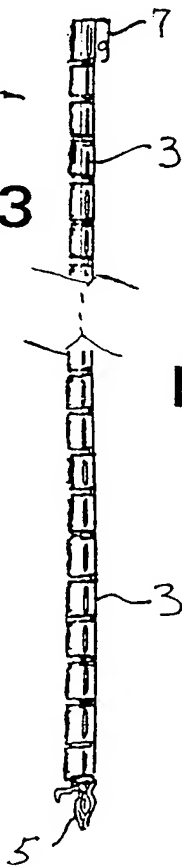
**Fig. 1**



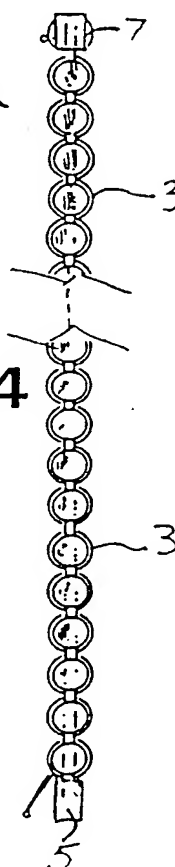
**Fig. 2**



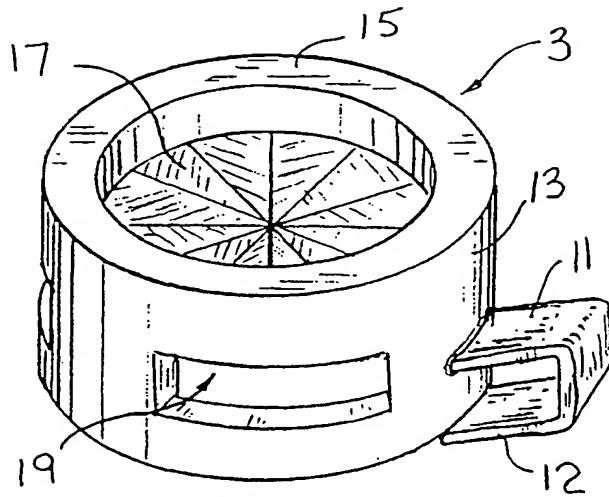
**Fig. 3**



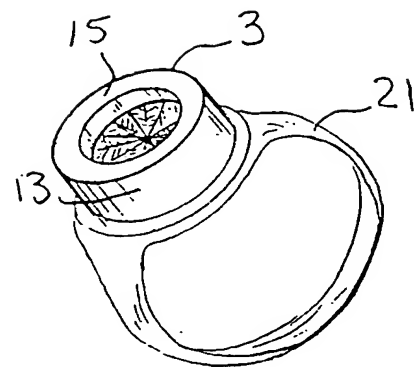
**Fig. 4**



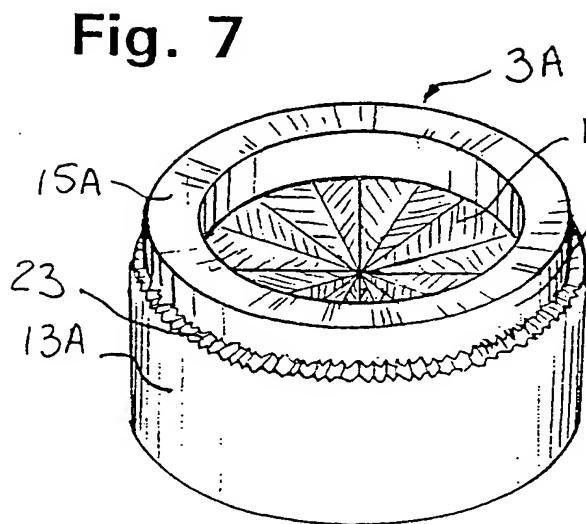
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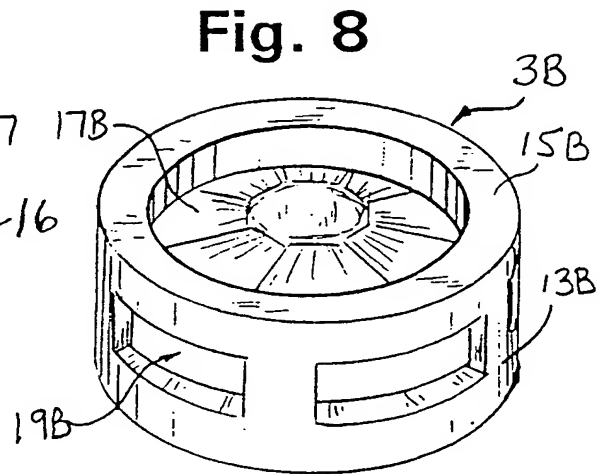
**Fig. 5**



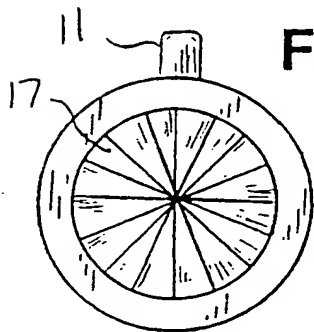
**Fig. 6**



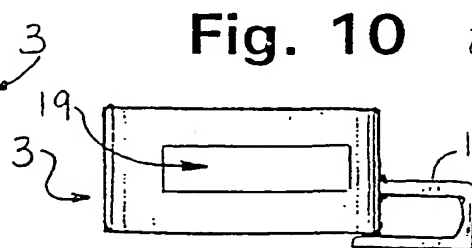
**Fig. 7**



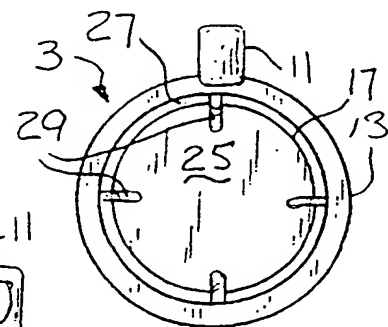
**Fig. 8**



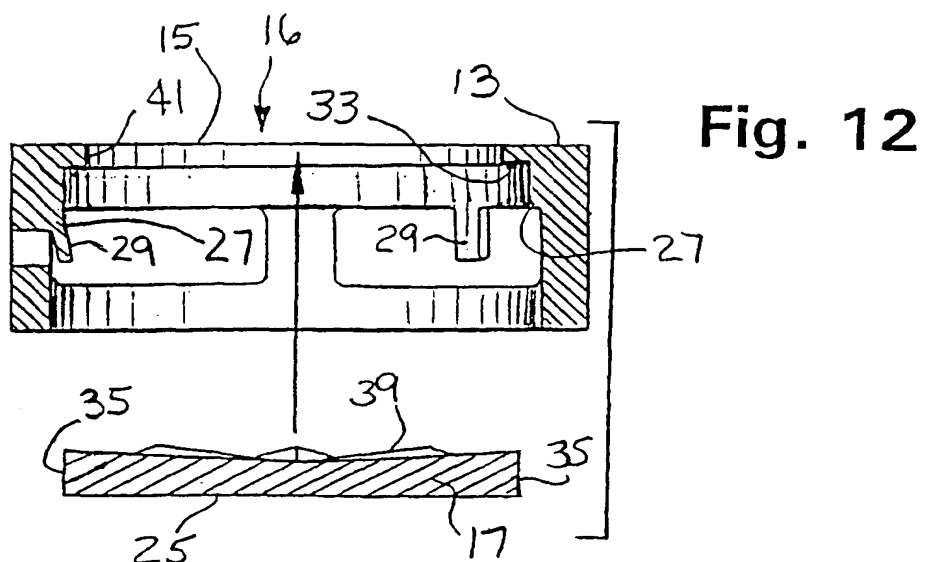
**Fig. 9**



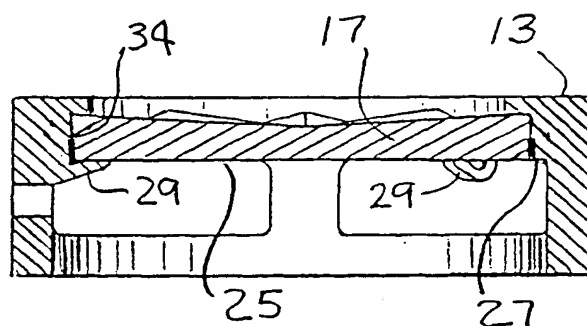
**Fig. 10**



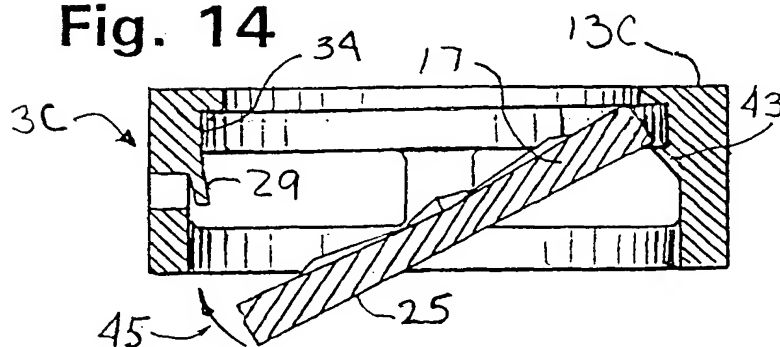
**Fig. 11**

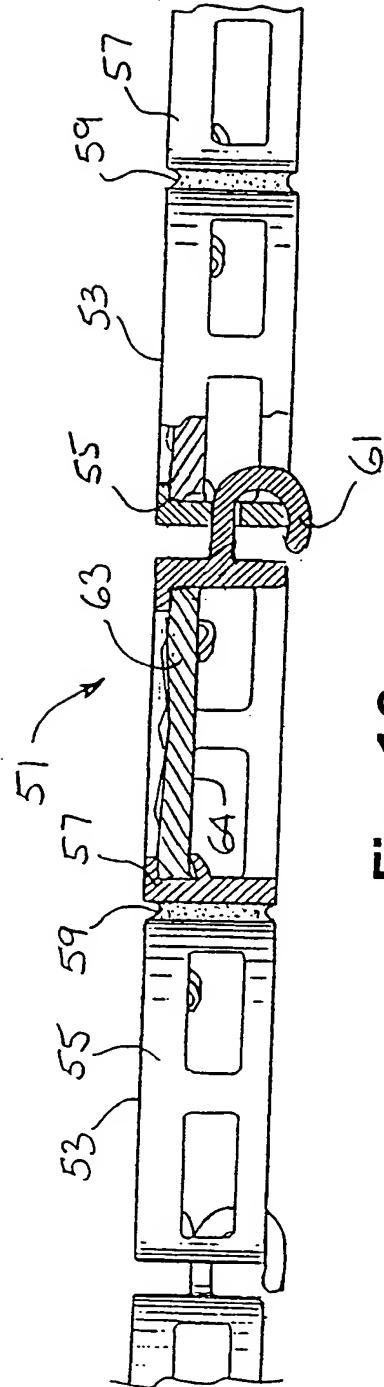
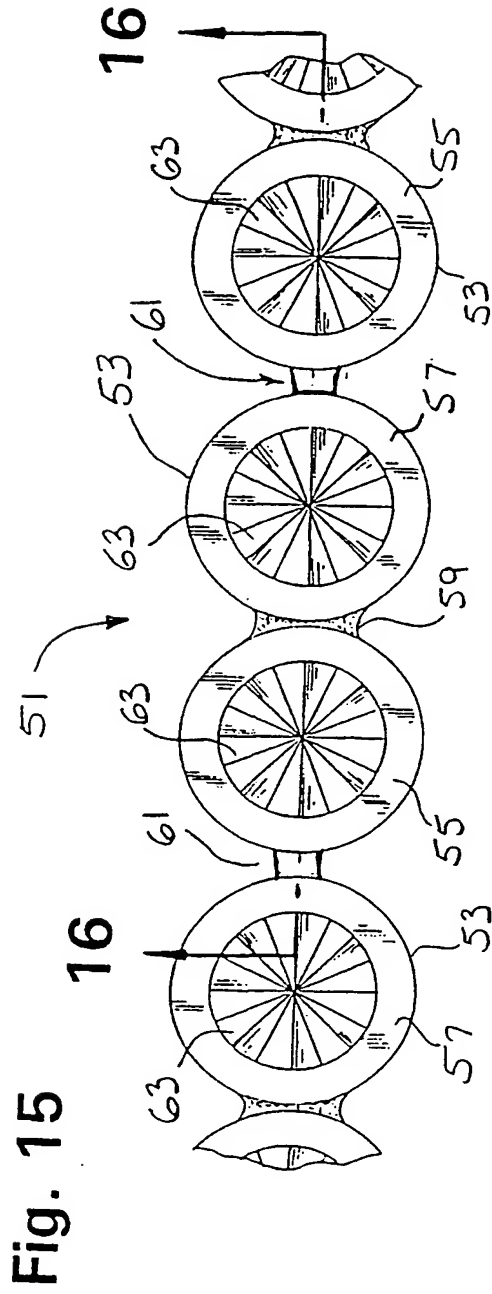


**Fig. 13**



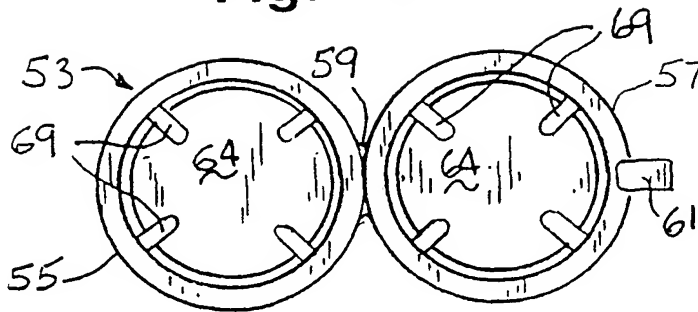
**Fig. 14**



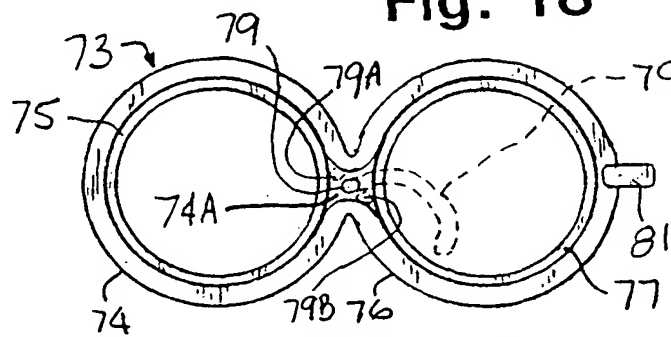


**Fig. 16**

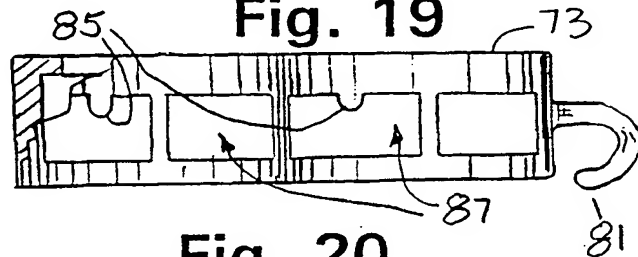
**Fig. 17**



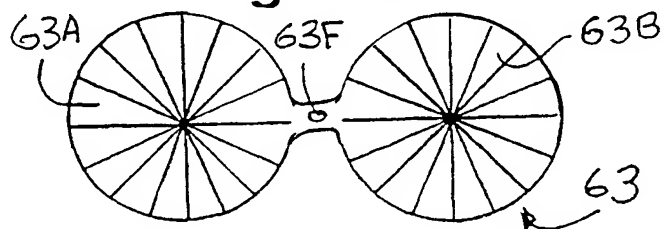
**Fig. 18**



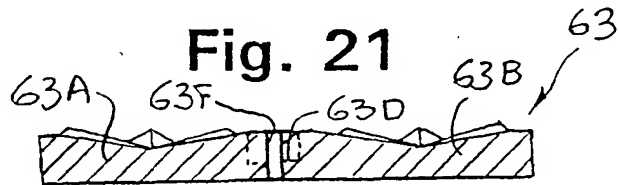
**Fig. 19**



**Fig. 20**



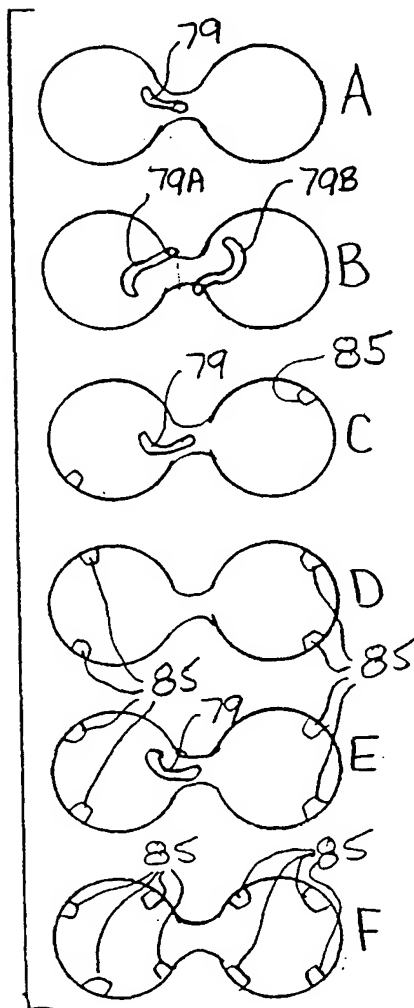
**Fig. 21**

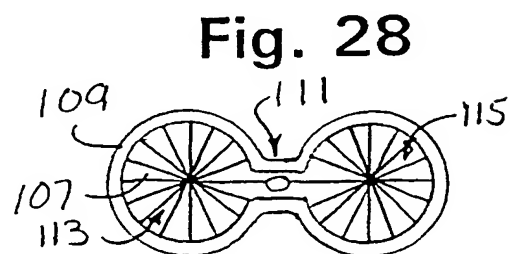
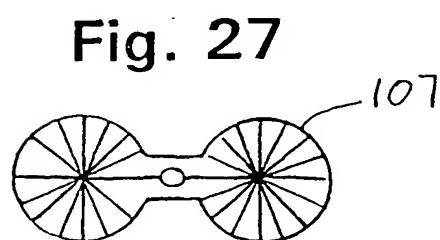
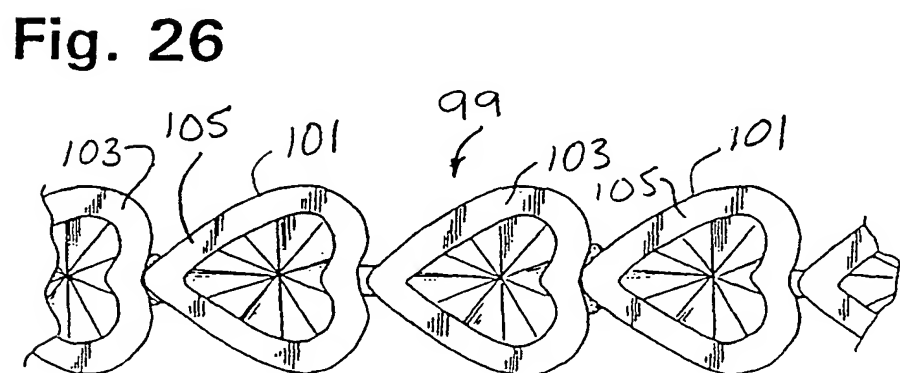
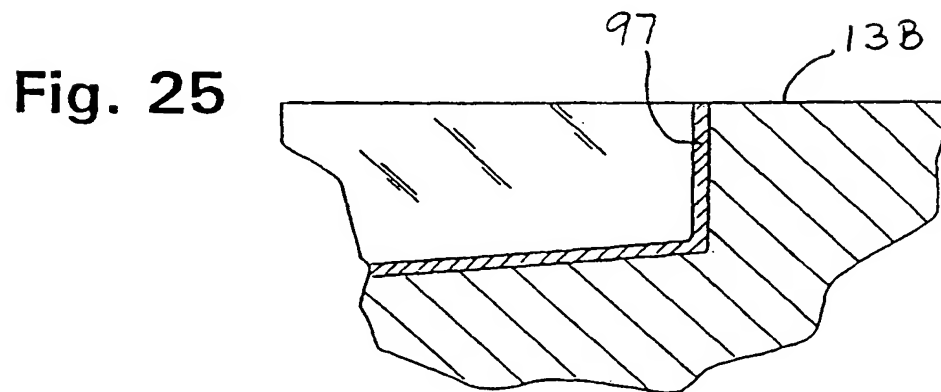
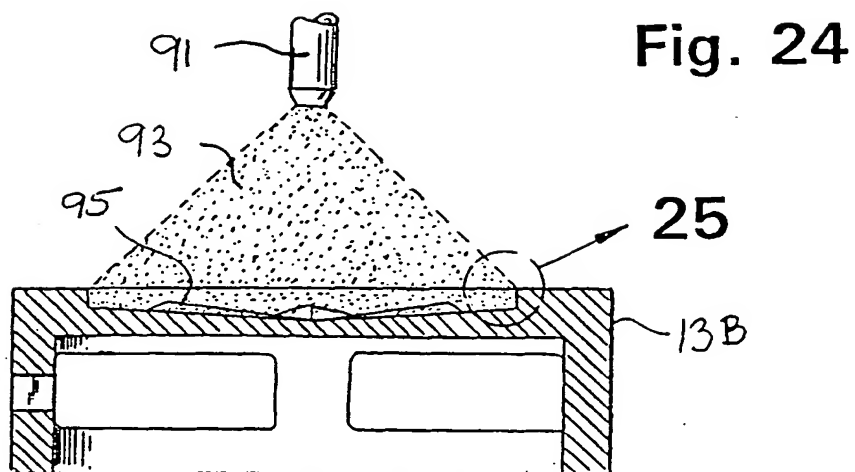


**Fig. 22**



**Fig. 23**





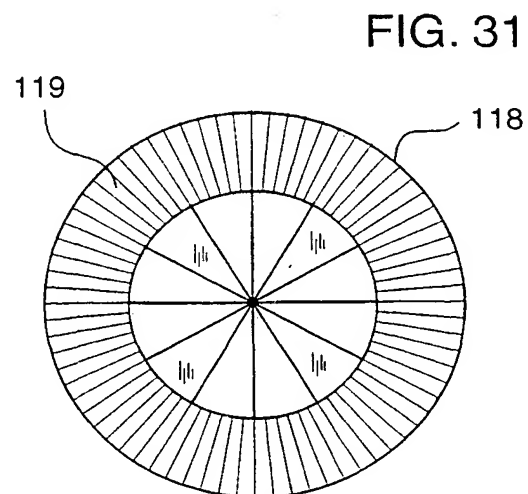
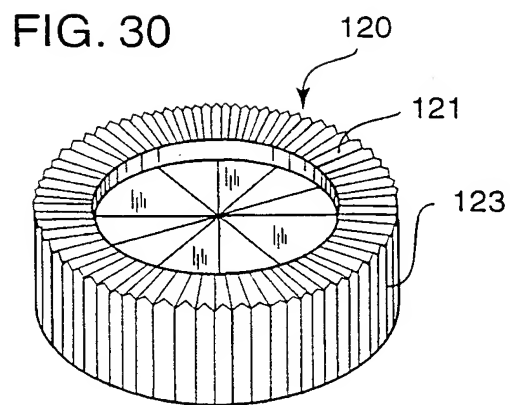
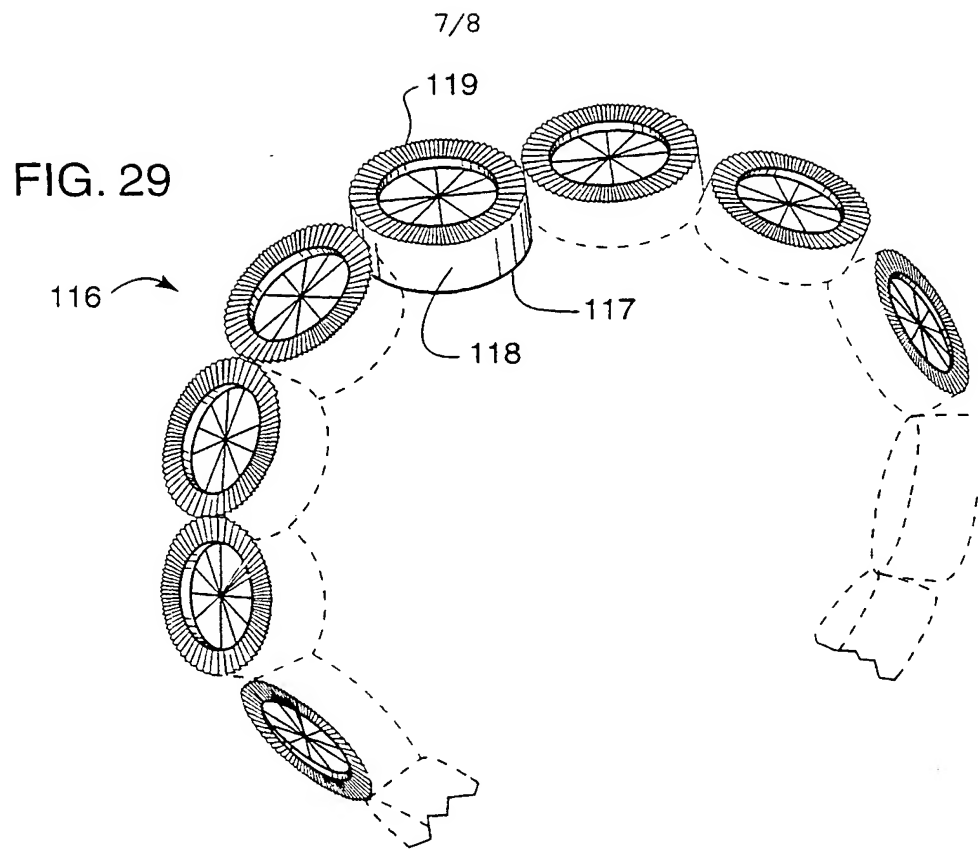




FIG. 32

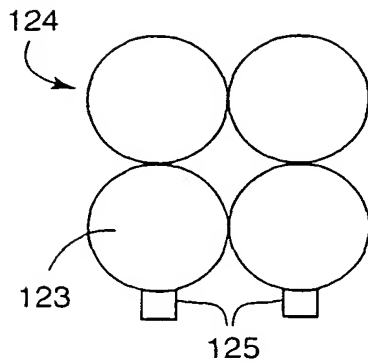


FIG. 33

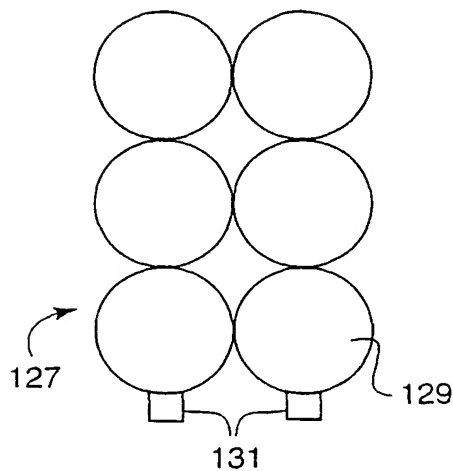


FIG. 34

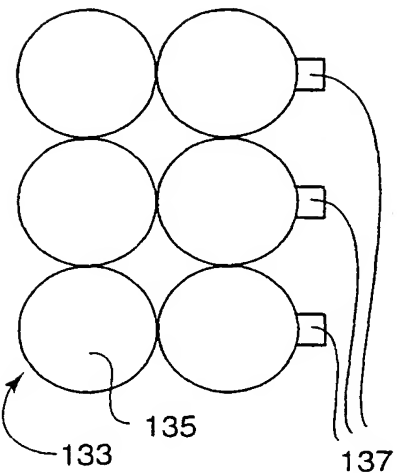


FIG. 35

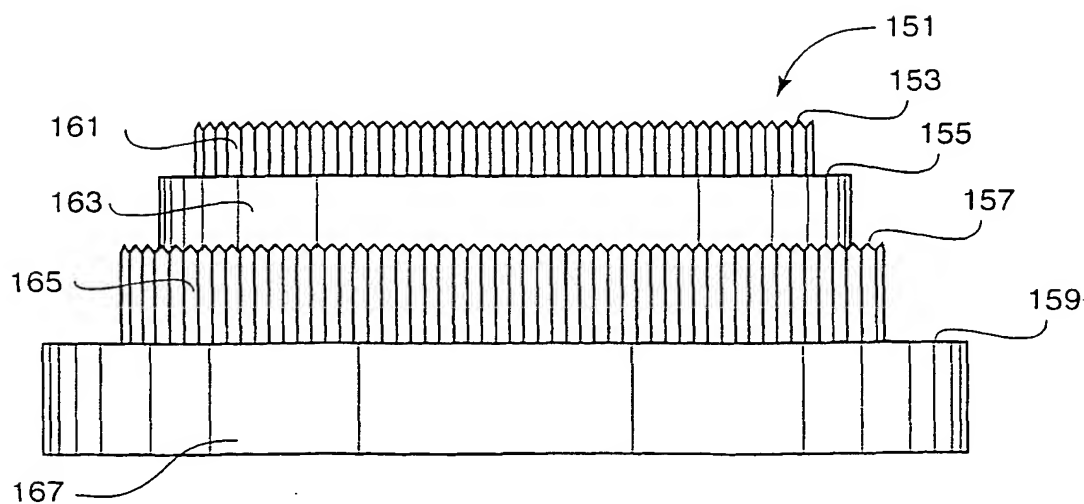
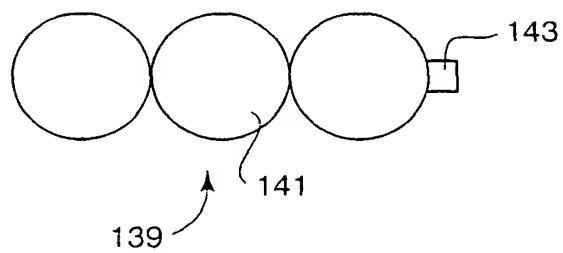


FIG. 36

SUBSTITUTE SHEET (RULE 26)

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 99/31126

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A44C17/02 A44C5/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A44C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 063 751 A (TEMPO G) 3 November 1982 (1982-11-03)	1,2,4,5, 10,31, 36-38, 40,41,43 7
Y	page 12, line 22 -page 13, line 24; claim 1; figures 1,2	
X	US 4 399 910 A (GUTENTAG CHARLES) 23 August 1983 (1983-08-23)	1,2,4,5, 10,31, 36-38, 40,41,43 7
Y	column 6, line 55 -column 7, line 29; figures 1-4	
X	US 5 365 754 A (NALBANDIAN GEVORK) 22 November 1994 (1994-11-22)  column 2, line 48 - line 66; figures 5,6  -/-	1-3,10, 11,31, 36-39,43

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

16 March 2000

Date of mailing of the international search report

23/03/2000

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Fax: (+31-70) 340-3018

Authorized officer

Kock, S

## INTERNATIONAL SEARCH REPORT

Inta Application No  
PCT/99/31126

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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